

LISTING OF CLAIMS:

This listing of claims will replace all prior versions, and listing, of claims in the application.

1. (Currently Amended) A printing machine ~~which includes comprising:~~ .
an ink reservoir;
an ink supply source; and
~~at least one or more ink delivery tubings each path~~ connecting said ink reservoir to
said ink supply source, ~~whereby the so that~~ ink supplied from said ink supply source ~~can be~~
~~supplied via at least one of~~ said ink delivery ~~tubings path~~ to said ink reservoir and accumulated
therein is used for printing,
~~wherein the printing machine further comprises at least one or more ink removing~~
~~means for removing said mechanism that removes~~ ink remaining in said ink delivery
~~tubings path,~~
~~each of said one or more said ink removing means includes respective removal~~
~~mechanism including an air supply means which supply a fast enough flow rate and/or a large~~
~~enough flow volume of supplies~~ air into said ink delivery ~~tubings such path~~ with at least one of a
~~flow rate and a flow volume sufficiently large enough so that the air flows toward said ink~~
~~supply source in the a direction away from said ink reservoir in order to and so removes said ink~~
~~remaining on the an inner surface of said ink delivery tubing path,~~
~~said ink delivery path including at least one ink supply tubing for supplying ink~~
~~from said ink supply source to said ink reservoir, and at least one ink recovery tubing for~~
~~recovering ink from said ink reservoir and returning the ink to said ink supply source,~~

each of said at least one ink supply tubing and said at least one ink recovery tubing comprising an ink transfer mechanism which transfers ink between the ink reservoir and said ink supply source in one direction and another direction opposite to the one direction, and said air supply,

whereby at least one of (a) said ink supply tubing serves as an ink recovery tubing and (b) said ink recovery tubing serves as an ink supply tubing.

2. (Currently Amended) The printing machine according to Claim 1A printing machine comprising:

an ink reservoir;

an ink supply source; and

at least one ink delivery path connecting said ink reservoir to said ink supply source so that ink from said ink supply source can be supplied via said ink delivery path to said ink reservoir and accumulated therein for printing; further comprising one or more ink transfer means for transferring said

an air supply which supplies air into said ink delivery path with at least one of a flow rate and a flow volume sufficiently large enough so that the air flows toward said ink supply source in a direction away from said ink reservoir and so removes ink remaining on an inner surface of said ink delivery path,

said air supply serving to transfer ink between said ink reservoir and said ink supply source via at least one of said ink delivery tubings,

wherein each of said ink transfer means transfers said ink via said ink delivery tubingspath at least one of (a) before and (b) during the printing operation of the printing

~~machine, while said ink transfer means moves air in said ink delivery tubings after a printing operation thereof has finished said air supply removes ink remaining in said delivery path after the printing operation.~~

3. (Currently Amended) The printing machine according to Claim 1, wherein said ink removing means~~removal mechanism~~ further includes at least one diluting liquid supply means which supply~~that supplies~~ liquid in said ink delivery tubing~~tubing~~ such that the liquid flows toward said ink supply source from said ink reservoir in order to dilute said ink remaining therein.

4. (Currently Amended) The printing machine according to Claim 23, wherein said ink removing means~~removal mechanism~~ further includes at least one of a viscometer for detecting the viscosity of said ink being removed from said ink delivery tubing~~tubing~~, and at least one adjusting means for adjusting~~mechanism that adjusts~~ the amount of diluting liquid supplied by said diluting liquid supply means in response to the viscosity detected by said viscometer.

5. (Currently Amended) The printing machine according to Claim 2, wherein each of said air supply means comprises air flow tubings connected to be in fluid communication with said respective ink delivery tubing~~s path~~ in close proximity to opening ends thereof adjacent to said ink supply source, and an air suction means~~unit~~ disposed within said air flow tubings for sucking air down from said ink delivery tubing~~s path~~ by virtue of air flow passing through said air flow tubings.

6. (Currently Amended) The printing machine according to any one of Claims 1 to 3, wherein ~~each of said air supply means comprises an air/gas introduction means~~ introducer which introduces air/gas into said ink delivery ~~tubingspath~~ in close proximity to the opening ends thereof adjacent to said ink supply source.

7. (Currently Amended) The printing machine according to Claim 23, wherein said diluting liquid supply ~~means~~ comprises diluting liquid tubings connected to be in fluid communication with said ~~respective~~ ink delivery ~~tubingspath~~ in close proximity to the opening ends thereof adjacent to said ink reservoir, and a diluting liquid source connected to said diluting liquid tubings, respectively.

8. (Cancelled)

9. (Currently Amended) The printing machine according to Claim 1, wherein said ink reservoir is formed by an inking roller which applies said ink to a printing die, an ink squeezing member extending along the axis of said inking roller in contact with the same for the adjustment of the amount of said ink being applied to the printing die, and a pair of diaphragms or dam plates disposed at common end extremities of said inking roller and said ink squeezing member,

comprising ~~one or more~~ a driving ~~means~~ mechanism which moves said opening ends of ~~at least one of~~ said ink delivery ~~tubingspath~~ adjacent to said ink reservoir along said axis of the inking roller.

10. (Original) A method for supplying/recovering ink wherein said ink is supplied and/or recovered via at least one of ink delivery tubings connected between an ink reservoir and an ink supply source,

wherein the method includes the step of supplying a fast enough flow rate and/or strong enough flow volume of air into said ink delivery tubings so that the air flows toward said ink supply source in the direction away from said ink reservoir, and the step of supplying a diluting liquid in said ink delivery tubings intermittently such that the liquid flows toward said ink supply source from said ink reservoir, wherein both of said supplying steps occur simultaneously in order to recover said ink remaining on the inner surface of said ink delivery tubings.

11. (Original) The method according to Claim 10, wherein the method further includes the step of detecting the viscosity of said ink being removed from said ink delivery tubings, and the step of adjusting the amount of said diluting liquid in response to the viscosity detected by said step of detecting.

12. (Original) An apparatus for removing and/or recovering ink remaining in one or more ink delivery tubings connecting an ink reservoir to an ink supply source,
wherein the apparatus includes air supply means which supplies a fast enough flow rate and/or strong enough flow volume of air into said ink delivery tubings such that the air flows toward said ink supply source in the direction away from said ink reservoir in order to remove said ink remaining on the inner surface of said ink delivery tubings.

13. (Original) A preparation method for changing printing color, wherein the printing machine used for the method comprises an ink reservoir being formed by an inking roller which applies ink to a printing die and an ink squeezing member extending along the axis of said inking roller in contact with the same for adjustment of the amount of said ink being applied to the printing die,

an ink supply source for supplying ink to said ink reservoir, and
one or more ink delivery tubings each connecting said ink reservoir to said ink supply source, whereby the ink supplied from said ink supply source via at least one of said ink delivery tubings to said ink reservoir and accumulated therein is used for printing, and thereafter the printing color is changed by replacing said ink supply source for a successive printing step using a different color,

the method comprising the step of supplying said ink from said ink supply source to said ink reservoir via at least two of said ink delivery tubings,

using at least one of said ink delivery tubings for supplying said ink from said ink supply source to said ink reservoir, while using at least one of the other of said ink delivery tubings for recovering said ink from said ink reservoir and returning it back to said ink supply source, whereby said ink is circulated between said ink supply source and said ink reservoir, and said ink accumulated in said ink reservoir is used for printing,

using all of said ink delivery tubings in order to recover said ink from said ink reservoir and return it back to said ink supply source, while at the same time rotating said inking roller, so that remaining ink in said ink reservoir is recovered and returned back to said ink supply source,

supplying a diluting liquid onto the surface of said inking roll, thereby removing or rinsing out said ink from the surface thereof,

recovering said ink from said ink delivery tubings and returning it back to said ink supply source, by supplying a fast enough flow rate and/or strong enough flow volume of air into said at least two of ink delivery tubings such that the air flows toward said ink supply source in the direction away from said ink reservoir,

replacing said ink supply source in which remaining ink has been recovered therein with an ink supply source of another color.

14. (New) A printing machine as in claim 1, wherein said ink recovery tubing can both supply and recover ink.